TRANSPORTATION POLICY AND THE RURAL ENVIRONMENT

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Adequate transportation capacity and service at reasonable prices are basic in sustaining the viability of industrial nations. Transportation contributes to economic growth and to the national aim of cultural, social, and political unity by removing isolation and immobility.

Many of our public and private transportation agencies currently face serious financial problems. Some of these problems have been widely publicized. The financial problems of all carriers have been further aggravated by the drastic change in the cost of energy and supplies. The transport industries must also reckon with stricter enforcement of regulations relating to exhaust emissions and fuel conservation.

The lack of cooperation between modes and the inability to attract private capital on favorable terms have often prevented the industry from employing available means of improving productivity. Long-range planning is complicated by the uncertainties of population shifts. Maintaining an economically viable system that will also provide acceptable levels of service represents one of the foremost national problems in the immediate future.

Government policies, foreign and domestic, have a direct impact on the transport industry. Agricultural products, a major component of foreign trade, are now an important factor in foreign diplomacy. As a result, agricultural transport demand has taken on added importance. The heavy movement of grain abroad in 1973–74 placed extraordinary demands on the transport industry, particularly railroads. The uncertainties of export demand and wide traffic fluctuations have created another problem of forecasting the capacity needs for freight transportation.

In 1973, personal transportation was the largest expense item in the budget of farm families. More money was spent to own, operate, and maintain motor vehicles than for either housing, clothing, or food. In fact, farm families paid about as much for automotive purposes as for all living needs eighteen years earlier.

The sharp distinctions between what is rural and what is urban

have been diminishing as more knowledgeable people recognize certain mutual interdependencies. However, there does not appear to be a general awareness or concern about rural transport needs. The spokesmen for the less visible rural transport needs have generally been unorganized as compared with those for the large cities. Whatever the reasons, the consequences of prolonged neglect of rural transport needs will be felt especially hard by the poor, the elderly, and the handicapped and the small farmers and rural businesses with locational disadvantages.

NATIONAL TRANSPORTATION POLICY

Various laws and regulations, by the states and the federal government, have been enacted since the passage of the Interstate Commerce Act in 1887 to protect both carriers and shippers. For the most part the regulated transportation industries are operating under a policy established thirty-five years ago in the Transportation Act of 1940. The policy at that time called for promoting "safe, adequate, economical, and efficient service," while preserving the "inherent advantage" and sound economic conditions of all modes and while maintaining equitable relationships in every direction.

Historically, the policy has been to promote development of different methods of transport because each mode offers something that no other does. Each mode was allowed to develop its potential. In this process, transportation has been regulated unevenly. Each mode of transport has received public assistance though the amount of assistance has varied greatly by mode and over time.

Interpretation of policy has led to some confusion and controversy. For instance, what is an adequate transport system? If an adequate system is judged by looking at a map or totaling the number of miles in the system, then it may appear adequate. The highway sector increased 5 percent between 1961 and 1971 and dominated all surface modes with 3.8 million miles in 1971. Railroad mileage declined 6 percent to 205,000. According to the Federal Highway Administration, municipal (5,000 people or more) mileage comprised about 15 percent and rural mileage 85 percent of all roads and streets.

In attempting to meet the demands of an automotive society, more highways are built, which tend to generate still more motor vehicles. The number of motor vehicle registrations in 1974 was nearly 130 million, an increase of 4.2 million over 1973. Furthermore, cars, trucks, and buses now account for 87 percent of all personal trips made.

Is the rural highway system adequate for future logistical needs? More trucks carrying heavier loads create a need for roads and bridges of high structural quality. A National Transportation Report by the Department of Transportation revealed that 70 percent of the nation's rural mileage and half of the urban mileage identified for upgrading by 1990 were already deficient in 1970. Nearly 72 percent of the nation's 563,500 bridges were built before 1935, and many of these require modernization. The average weight of a given load on rural roads increased by more than 70 percent between 1960 and 1970, and loads of 40,000 pounds or more increased by 90 percent.

A disturbing matter is the inability of private investment to generate adequate funds for rail transport. The depressed earnings situation of many railroads at present is jeopardizing the attraction of capital on favorable terms. The net earnings of railroads, on an industry-wide basis, have remained about 3 percent since 1967. Since the early 1970's a number of railroads have gone bankrupt in the Northeast and the Midwest. While numerous reasons are cited for slow growth or decline in operations and low earnings, the deterioration of fixed facilities due to deferred maintenance since about 1970 has adversely affected rail capacity and service.

The abandonment of unprofitable light density rail mileage, parallel lines, and duplicate facilities is viewed as a means of trimming back capacity, thus improving efficiency and railroad profits. In the Northeast and Midwest rail reorganization process, it is anticipated that in 1976 alone at least 5,000 miles will be abandoned or require continuation subsidies. Over time, fewer fixed facilities, the control of inflation, and the return of improved business conditions should lead to an improved financial position for the railroads.

The thrust of regulatory policy has been on the economic stability of the regulated carriers in order that they might render adequate service to the public. The problem of the economic stability of regulated air carriers and their ability to render adequate service for metropolitan areas was the subject of a 1974 subcommittee hearing in the U.S. Senate.

The airlines contend that high load factors and long distance flights are needed to achieve efficiency and economic stability. Airlines have increased productivity by flying larger and faster aircraft—more seat miles at a lower seat mile cost. Total costs may be controlled by increasing the average distance between landings. Short trips typically result in less aircraft utilization and higher

depreciation costs per flight per hour due to time spent on the ground.

The inland waterways have always been important in our transportation history. Waterway system expansion and improved equipment permitted the inland barge carriers to increase their share of total freight carried from 4 percent in 1940 to 10 percent in 1970. This low-cost method of transport for bulky items has been vital to some rural development interests, international trade, and the nation's balance of payments.

Up to now the various users of inland waterways have not paid for maintenance of the waterway system. For this reason the maintenance of waterways is not a factor in the total costs of barge operations. However, the National Water Commission, in its 1973 report to the President and the Congress, recommended modest charges to waterway users. Studies of user charges involve more than water policy; the issues concern the entire area of transportation and agricultural marketing.

Related to the user charges dilemma is how public funds should be used to support transport and how these funds should be recovered. In recent decades public expenditures have been heavily oriented to highways. In 1974, of the $29.1 billion spent for all domestic transportation, highways received nearly $25 billion. State and local governments spent $19.7 billion for highways, and the federal government spent $5.1 billion.

The commercial trucking industry has taken the position that it pays its fair share of the total user taxes paid (35 percent or $6.1 billion in 1972) to federal and state sources, for the use of highways. Other motorist groups and transport agencies, primarily the railroads, believe truckers do not pay enough. The railroad industry, which provides its own rights-of-way, paid $438 million to state, county, and municipal governments, largely in the form of property taxes or its equivalent. In 1973, the airlines paid $795 million in taxes, including landing fees and aviation fuel taxes.

Perhaps the basic issue is whether a national transportation policy is needed. The transport function is a means to an end, and carriers have generally adjusted and responded to national needs. The abandonment of rail lines may be an exception since the decision to remove tracks and ties has been initiated by carriers. The supportive role of transportation seems logical in light of society's larger goals to foster wise energy use, national defense, employment, and environmental quality.

The Department of Transportation is applying broad economic,

social, and environmental criteria in a fundamental re-examination of national transport policy. It believes transportation policy objectives should encourage economic efficiency, environmental quality, safety, and support of national defense. A fifth objective is to facilitate the process of local determination by decentralizing decision making.

The Department suggests there is a maldistribution of transport services and facilities. One issue is that of rural versus urban highway investment. It is implied that in the past rural areas may have received roads in excess of the share they pay in user charges, and that urban areas lost in the sense of unbuilt or unimproved urban highways.

A DOT statement indicates that the historical role of transport in bringing about an infrastructure essential for spatial unity is essentially complete. DOT contends that provisions must now be made to service a mature industrial economy. In order to accomplish this task, more service alternatives, new relationships, and broader vision are needed.

The impact of DOT's policy proposal for the future course of transport would, if enacted and implemented, lead toward greater flexibility by state and local governments for choosing among investment alternatives. It seems reasonable that state and local governments could better appraise their internal transport needs and priorities than the centralized federal government.

TRANSPORTATION POLICY RELATED TO ENERGY

The economic growth and prosperity of this country are due in large part to the unrestricted flow of low-cost oil from petroleum exporting nations. Transportation, a high energy function, consumes about 50 percent of the 18 million barrels per day of U.S. liquid fuel usage.

There are wide differences in energy requirements among types of transport propulsion-power systems. To move one ton one mile, an inland water vessel and a locomotive consume about 680 BTU's; a truck, 2,400. Automobiles operating in congested urban areas consume about 8,100 BTU's per passenger mile, while those operating on relatively open roads are more than twice as efficient, at 3,400 BTU's.

The airlines are faced with the most serious crisis of all transport modes due to their large consumption of fuel. The very high energy intensity value of about 67,000 BTU's per ton mile for all air carriers could mean a problem of substantial traffic decreases if

carriers "pass through" higher fuel costs to their customers by rate adjustments.

Moving agricultural traffic to markets requires about 15 percent of the fuel used in total transport. The Economic Research Service, USDA, has estimated that the total fuel needs for agricultural transport in 1970 were 3.4 billion gallons of diesel fuel and 376 million gallons of gasoline. By 1980, the projected demand is expected to increase 19 percent, to 4.5 billion gallons. The ten-year transport requirements are projected on increased farm marketings and multiple handlings of about 25 percent, and only a slightly increased ton mileage due to decreased mileage per ton.

If this nation is to pursue a policy of less dependence on foreign oil, its people and industries will have to adjust to limited fuel supplies and higher costs. The opportunities we now have for dealing with fuel shortages are as untapped as the resources were a hundred years ago.

Annual gasoline savings of 6.6 billion gallons would be possible by a 7.1 percent improvement in one fuel factor, the miles per gallon. Other options include: consolidation of short trips by car pooling and mass transit; greater use of rail passenger service for long distances, including Amtrak; and curtailment of some leisure activities. Technical improvements such as more fuel-efficient automotive engines are being made, and small car sales have been increasing. The limitations on personal mobility may alter our lifestyle, but only slightly. The options available to rural people to offset increased fuel costs are more limited since they have fewer transportation alternatives.

Some locational disruptions in food production and processing may take place if fuel becomes a major cost. For some commodities production and processing may tend to shift closer to the market. Producers who are far from markets would tend to be at a competitive disadvantage as total costs increase.

Industry may be induced to ship goods by less energy intensive methods of transport if the incentives are sufficiently attractive. From an energy standpoint, long distance freight service favors the railroads and water carriers, although timeliness, weight of cargo, average speed, and overall costs of physical distribution are important factors when choosing a transport mode. Fuel may be saved by improved routings, freight consolidation, intermodal coordination, and avoiding empty miles.

Countermeasures to fuel limitations may take the form of

changes in the level of customer service. This implies a change in attitude concerning trade practices. Customers would need to place more value on reliability of service when selecting a method of transport. Businesses may need to establish more realistic lead times, order larger quantities, and centralize inventories.

In the long run, productivity increases can partially offset the impact of higher prices of energy and other materials. In 1974, the average volume of goods and services per hour of work in the United States declined for the first time in twenty-five years—by 2.7 percent. Productivity of all transportation industries—air, railroads, and intertrucking—was adversely affected by the economic slowdown and recession. Productivity may be expected to increase again with business recovery. Transport policy should then be so formulated and implemented as to foster programs aimed toward long-term national growth.

A means of improving rail productivity is to exploit rail technology. Some of the larger agribusinesses use unit trains as a fast, reliable, and low-cost method for moving large shipments of bulky products between two points. Although railroads have been expanding unit train operations in recent years, and wider use of this technique is acknowledged, the effects of these methods on concentration and market power deserve additional study.

Piggyback and containerized shipment of manufactured goods complements the national transportation plan to encourage economic efficiency. Increased use of intermodal service contributes to fuel conservation and at the same time diminishes the need for costly highway expansion to handle added truck traffic. However, the present use of piggyback (truck-rail) service accounts for only 5 percent of all rail industry carloadings—far below its potential.

Major reasons why carriers have avoided greater cooperative intermodal arrangements are independence in decision making and rivalry between competing carriers. Modal self-interest has tended to result in unnecessary duplication of facilities and some distortions in traffic allocation. Another limitation is the physical problem created by inadequate rail roadbeds and the lack of sufficient equipment for piggyback and containerized operations.

The regulatory agencies could enact permissive regulations to foster innovations such as common ownership of transport agencies, demonstration projects, and common use of rights-of-way. Agribusiness, organized labor, and transportation interests should be encouraged to aggressively promote innovative programs that

exploit technological efficiencies in such a way as to fill the needs of the whole nation.

ENVIRONMENTAL CONSIDERATIONS

In recent years air pollution caused by transportation has become a national concern. The transport system accounts for over half of the total pollutants emitted into the atmosphere. The automobile contributes nearly 60 percent of the total tonnage of carbon monoxide pollutants emitted into the atmosphere. Trucks, buses, and automobiles cause almost all of the transportation pollution.

An immediate effect of emission control devices installed on new cars has been a decrease in fuel efficiency. Cleaner burning fuels and partially effective control devices on cars will limit the rate of increase of pollution in cities. The cost for clean air is estimated to reach $8.2 billion by 1976. Whatever the true amount, it is not trivial. More studies are needed on the economic costs of air pollution versus the costs of preserving clean air.

TRANSPORTATION POLICY, POPULATION DISTRIBUTION, AND GROWTH

Over the years a gradual socio-economic transition has occurred from agrarian to industrial, and now to a service-oriented economy. People moved from the North to the South and the West, and later from rural areas to the rapidly growing metropolitan areas. Public policies such as land grants to the railroads and the more recent Appalachia program have been designed to influence the location of jobs and people within the country.

The public investments made to extend the railways and waterways clearly established the form and pattern of spatial growth for the emerging West and South. National growth policies in the nineteenth century, inspired by economic and political forces, were designed to promote the development of certain regions.

Rail traffic began to erode with the growth in highway transport and the across-the-board railroad rate increases, not on the raw products, but rather on the finished goods. High-value products such as steel were moved by truck, but iron ore continued to be moved by rail often without profit to the rail carrier. A key issue has been whether rural development has been enhanced by artificially low freight rates on raw products. If the value added by manufacturing accrued primarily to market-oriented locations,

then many rural areas may have received less than optimum benefits.

Just before the energy crisis it looked like people were beginning to migrate back to rural areas. Between 1970 and 1973 population grew by 4.2 percent in the nonmetropolitan areas and only 2.9 percent in the Standard Metropolitan Statistical Areas. During this period 600 nonmetropolitan counties reported population losses compared with nearly 1,300 with declining population in the 1960's. These data reflect the situation just prior to the large increase in prices of oil and gas. People who live in rural areas have few transportation alternatives to the automobile; most workers are not near public transportation. Their average trip needs are longer, and the total trips made per year are more numerous than in urban households. The impact of higher fuel prices will be greater for rural people because they require more fuel for mobility. Rising energy costs, especially for transportation, may provide an impetus to return to the cities.

The Presidential Commission on Population Growth and the American Future concluded that Americans really want the best of both worlds; they want the serene and clean environment, and nearby, the excitement and opportunity of the cities.

SUMMARY AND CONCLUSIONS

If this nation is to achieve balanced socio-economic objectives, a comprehensive, long-range national transportation statement is needed. We need to rethink the role of transport and reorder priorities to keep pace with national agricultural plans, land use, energy, and other national goals. In addition, the plans and projections for the future transport system itself need to be put in a transport setting. Greater public dialogue by informed citizens is needed on the role of transportation, the rationale for transport policy, and proposals for implementation of policy.

In the process of evaluating the transport systems for rural and urban areas, full consideration should be given to transport energy intensity factors. Policy makers are debating the issues, seeking to measure costs, and suggesting improvements. The rail reorganization plan for the Northeast and Midwest is proceeding slowly, but on a comprehensive basis. This effort should not be limited to one or two geographic regions. Some small communities will be disadvantaged, and the personal loss to affected persons should be minimized through humanitarian public policy.

Satisfying the demands for transportation, employment, hous-

ing, and energy will be a challenge as the population increases. It will also be difficult to provide adequate public and private services and institutions for elderly couples who live in small farming towns with a decreasing tax base. What is needed now is to determine the future mobility needs of rural citizens, in fact, all citizens.

Although city and rural areas compete for energy, land, and other resources, each is benefited by the progress of the other. Improved transport technology and service help promote this interdependence. In view of the many problems and needs of an urban society, it will be increasingly difficult to maintain quality transport service in the light density areas. This is a major challenge to public policy educators.

PART III

World Food Issues